



Integration of meteorological forecasts in operational flood forecasting

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The integration of meteorological forecasts for providing meteorological forcing data in the future domain is increasingly becoming routine in operational flood forecasting. Until recently the use of such products has been limited, but the increasing availability of meteorological forecast products, and the ease of integration of these with hydrological models, has led to several operational flood forecasting systems now using a variety deterministic and probabilistic products for driving hydrological forecasts. The approach to integration of these products depends largely on the structure of the hydrological models applied, as well as on the resolution of the forecast products. Though this integration provides potential benefits, the relationship between skill and lead time of the integrated hydro-meteorological forecasts must, however, be carefully verified to establish at what lead times these are of value.

This paper discusses the current state-of-the-art in the use of meteorological forecast products within the operational flood forecasting system used by the Federal Office for the Environment for forecasting in the Swiss Rhine basin in Switzerland. Originally only a limited number of meteorological forecasts products were applied to drive a basin wide semi-distributed hydrological forecast model. Since the MAP-D PHASE project the number of meteorological forecast products in use has been extended. Additionally new modelling concepts have been introduced for selected catchments including distributed hydrological models and real-time control tools for regulated lakes. The approach to integration of meteorological data within these is discussed, as well as some initial results of the verification of the integrated hydro-meteorological forecasts and their implication on flood warning.